

**METHODS FOR COMPUTING THE CRC OF A MESSAGE FROM THE  
INCREMENTAL CRCs OF COMPOSITE SUB-MESSAGES**

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**ABSTRACT**

Methods for adjusting an m-bit CRC of sub-messages are provided. Such adjustments enable the computation of the CRC of a message by XORing the partial or incremental CRCs of composite sub-messages corresponding to the sub-messages. In a first method, the contents of an m-bit memory location are field squared and stepped to the next state as determined by the Galois field generated by the CRC generating polynomial to adjust the m-bit CRC. In a second method, the partial m-bit CRC of a sub-message is calculated according to CRC generating polynomial,  $P(x)$ . A variable  $Y$  is calculated using a lookup table, where  $Y = x^n$  modulo  $P(x)$ . The partial m-bit CRC and  $Y$  are multiplied together and divided by  $P(x)$ . The remainder of the division forms the adjusted m-bit CRC.